REMARKS

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Reconsideration and allowance are respectfully requested.

Claims 1-36 are pending.

Basis for the amendment of claims 9, 25, 34 and 36 can be found in the originally filed application, including at page 1, line 13. No new matter has been added.

The rejection of claims 9-16, 25-32, 34 and 36 under 35 U.S.C. § 101 on page 3 of the Office Action is obviated by the amendments set forth above. All of claims 9-16, 25-32, 34 and 36 now recite performing the steps on a "computer system," thus tying them to a computing device. Furthermore, the method claims also recite that the data set "represents a geometry," which is an "article or material." Merriam-Webster defines "geometry" as a "surface shape" or "an arrangement of objects or parts that suggests geometric figures." Thus, the claimed methods are now properly tied to real world surface shapes or geometric figures. Accordingly, withdrawal of the Section 101 rejection is respectfully requested.

The rejection of claims 1-4, 7-12, 15-20, 23-28, 31 and 32, under 35 U.S.C. 103(a), as being unpatentable over U.S. Patent No. 6,801,665 (Atsumi) in view of U.S. Publication 2001/0040997 (Tsap) is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references for the following reasons.

The claimed invention recites that "the compressed analyzed data set has high fidelity in regions of interest and has lower fidelity in regions of lesser interest" and "automatically selecting a variable from the data set such that a **high rate of change of the variable** indicates the regions of interest and a low rate of change of the variable indicates the regions of lesser interest." Thus, the compression is automatically adjusted between high fidelity and low fidelity

based on the rate of change of the variable, not the variable itself. This is a major distinction between the claimed invention the combination of references.

The Examiner admits that Atsumi does not teach "selecting a variable from the data set." See page 3 of the Office Action. Atsumi also does not teach adjusting the compression based on the rate of change of the variable. The Examiner also argues on page 2 of the Office Action that:

> In the specification, page 4, lines 12-13, this "high rate of change of the variable" is a geometric region which has a rapid change in the stress field or has a high deformation rate. Tsap discloses means to automatically select a variable from the data set such that a high rate of change of the variable indicates the regions of interest and a low rate of change of the variables indicates the regions of lesser interest (see paragraph 44, E is the defined as change in stress change over change in force per unit; see paragraph 47, [G] is the deformation gradient matrix, E is a measure of stress level, which is defined by the specification on page 4, lines 12-13). Examiner will repeat the same rejections.

As discussed previously during the interview, Tsap does not teach that the rate of change of the variable is used to adjust compression. Nowhere does Tsap even teach or suggest monitoring the rate of change of any variable. Even if Tsap did disclose monitoring a rate of change, Tsap does not teach using high rates of change to automatically adjust the compression rate for high fidelity and using low rates of change to automatically adjust the compression rate for low fidelity. For this reason alone, the Section 103 rejection should be withdrawn.

Applicants respectfully submit that the Examiner's use of E as a "variable" having a "rate of change" is not entirely correct. In Tsap, E is calculated for all points within the data set, then Young's Modulus is varied and E recalculated for all the points. Tsap does not disclose any rate of change for E nor how to monitor a rate of change for E, nor how to use a higher rate of change for E to provide a compression rate for high fidelity and a low rate of change for E to provide a compression rate for low fidelity.

Furthermore, Tsap teaches to analyze the entire data set, which is very different from the claimed invention. In the claimed invention, regions of interest

in the data set are automatically given a compression rate that provides high fidelity based on the high rate of change of the variable.

Moreover, Tsap teaches to look for regions with a high or low strain. This means that Tsap teaches to look for regions of minimal or zero rate of change (applying a rate of change to Tsap) for E rather than a high rate of change for E. In the claimed invention, a high rate of change identifies the regions of interest, not low rate of change as in Tsap. Thus, Tsap teaches in a direction opposite to the claimed invention.

TSAP does not disclose a 4-Dimensional data set, as recited in claim 5, but discloses comparison of predicted and actual 3-Dimensional data after stressing of the non-rigid object.

A person of ordinary skill in the art would not look to Tsap to solve the problems with Atsumi to obtain the present invention because the two inventions are directed to very different fields. Atsumi discloses a method and apparatus for encoding digital image data and transmitting it over communication lines where the user must identify and plug in the regions of interest into the system during the beginning, or in the middle, of the encoding process. Tsap discloses a system and method of recovering material properties of non-rigid objects including skin, tissue, rubber and plastic through vision based motion analysis and finite element modeling. For this reason alone, the Section 103 rejection should be withdrawn.

In view of the lack of motivation to combine the references, and the many differences between the claimed invention and the theoretical combination of references, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claims 6, 14, 22, and 30 under 35 U.S.C. 103(a), as being unpatentable over Atsumi in view of Tsap as applied to claim 1 and further in view of U.S. Patent No. 6,499,350 (Board) is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references for the following reasons.

The claimed invention is not obvious over the cited references for the reasons provided above and for the following reasons. Tsap is concerned with

assessing burn scars on human skin, natural and man-made elastic materials and human hand modeling (Page 1 paragraph 6). The model in Tsap uses a first mesh on the object, i.e. skin, in a first "unstressed" position and uses that to predict the "stressed" position of the skin after a displacement force has been applied (Page 2 paragraph 20). The predicted points are compared to the actual points following displacement and the FEM refined by iteration until a "global minimum" error is found between the predicted and actual measurements (Page 2 paragraph 24). The aforesaid method is used to extrapolate the material properties of the non-rigid object or human skin. Tsap's method would not work for a rigid object, such as a fan blade, since it would not deform when under strain. Thus, the combination of references would not be used to evaluate a fan blade.

In view of the many differences between the claimed invention and the cited references, withdrawal of the Section 103 rejection is respectfully requested.

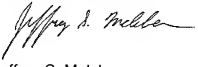
The rejection of claims 33-36 under 35 U.S.C. 103(a), as being unpatentable over Atsumi in view of Tsap and U.S. Patent No. 5,640,462 (Sato) is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references for the following reasons.

The claimed invention is not taught or suggest by the combination of Atsumi and Tsap for the many reasons provided above. Sato does not provide the deficiencies of Atsumi and Tsap. The Examiner cites column 9, lines 38-43 of Sato, which discloses that "measurement of a distance between two points in the measuring object, or, detection of a defect portion in the measuring object can be performed by designating the two points and the defect portion as the ROI and performing a cross section CT with high resolution." However, Sato does not teach that the most significant cross-sectional is presented "automatically" based on "at least one of a stress, a deformation rate or other variable above a threshold." Thus, the combination of references cannot teach such.

In view of the many differences between the claimed invention and the combination of cited references, withdrawal of the Section 103 rejection is respectfully requested.

In view of all of the rejections of record having been addressed, Applicants submit that the present application is in condition for allowance and Notice that effect is respectfully requested.

Respectfully submitted,



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